UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF NEW YORK

PARABIT SYSTEMS, INC. Plaintiff v. SYNERGISTICS, INC., MILLENNIUM GROUP, INC., ISLAND MASTER LOCKSMITH, INC., IML SECURITY, GREGORY I. GOLDMAN, CATHY T. GOLDMAN, MARC SEIDENBERG, AND JOHN DOES I-III Defendants	:	CASE NO. 2:19-cv-888-BMC

DECLARATION OF DR. MATTHEW POOLEY IN RESPONSE TO MILLENNIUM DEFENDANTS' ACCUSATION THAT I WAS "UNPREPARED" FOR THE AUGUST 25, 2022 ACCUSED DEVICE INSPECTION

LIMITATIONS

1. At the request of Greenspoon Marder, LLP, Exponent provided technical services and opinions relating to the matter of Parabit Systems Inc. v. Synergistics, et al. Exponent investigated specific issues relevant to this matter as requested by the client. The opinions and comments formulated during this assessment are based on observations and information available at the time of this investigation.

2. The findings presented herein are made to a reasonable degree of scientific certainty. I have made every effort to accurately and completely investigate all areas of concern identified during our investigation. I reserve the right to supplement this declaration if and when new information becomes available after this declaration is signed, including, but not limited to, additional discovery or documents, opinions of the court, and the opinions and testimony of other experts in this case. I reserve the right to respond to any opinions offered by other experts and to any testimony offered at trial. I also reserve the right to create graphics or demonstratives to support my opinions at trial.

I. INTRODUCTION

3. I, Matthew A. Pooley, Ph.D., am currently a Senior Managing Scientist at Exponent, an engineering and scientific consulting firm with corporate headquarters at 149 Commonwealth Drive, Menlo Park, CA 94025. I am based in Exponent's New York office, located at 420 Lexington Avenue, Suite 1740, New York, NY 10170.

4. Exponent was retained on behalf of Parabit Systems Inc., to provide technical services and opinions related to U.S. Patent No. 8,523,072 ("the '072 patent"). At the request of counsel for Parabit System Inc., I performed an inspection of an example accused product on August 25th, 2022. Due to various impediments placed upon me by Defendants, including that I was not

permitted to perform the inspection in a properly equipped laboratory, and that I was not provided with critical information pertaining to how the accused product detector system functions in advance of the inspection, I was unable to perform the investigation that I intended to perform.

5. Nevertheless, although I could not fully investigate the accused product as I intended, I was still able to demonstrate that the accused products are responsive to infrared light to detect the presence of or absence of an object within a defined space. In addition, the information I discovered during the August 25th inspection has enabled me to develop an updated investigation protocol that will allow me to perform a more proper infringement analysis of the accused products at a second inspection.

6. More specifically, using information that I only discovered during the August 25th inspection—i.e., details of how the accused product detectors report measurement data that were unavailable to me prior to this inspection—I devised an updated measurement protocol, which involves equipment that was unavailable to me during the August 25th inspection that I have now assembled for use in a second inspection.

7. I understand that Defendants are now accusing me of being unprepared for the August 25th inspection. I disagree entirely with such demonstrably false accusations. This declaration serves as a summary of my inspection, including the measurement protocol considerations devised in advance, the bespoke equipment assembled for the inspection, and the reasons why—due to the various arbitrary impediments imposed by Defendants—I was unable to investigate the accused product properly during the inspection.

8. I am a full-time salaried employee of Exponent. Exponent charges an hourly rate of $475 plus expenses for my work performed regardless of the task performed. I have received no additional compensation for my work in this litigation, and my compensation does not depend

upon the content of this declaration, any testimony I may provide, or the ultimate outcome of this matter. My opinions, as expressed in this declaration, are based on my education, career, and relevant experience, as well the inspection.

II. EXPERIENCE

9. I received an MSci Degree (Honours, 1st Class) in Physics from the University of Nottingham, and a Ph.D. in Physics from the University of Cambridge in the United Kingdom.

10. My experience with semiconductor electronic devices and infrared ("IR") optics spans from my undergraduate studies, across my Ph.D. research, and throughout my professional experience at COMSOL in Cambridge, Massachusetts, and at Exponent. Much of this experience involves designing, fabricating, characterizing, and modeling semiconductor devices—including optoelectronic devices that interact with IR light. In addition, whilst at Exponent I developed and published a novel image processing algorithm for analyzing surface properties of objects from IR images.

11. A more detailed overview of my experience, which is incorporated herein by reference, is provided within my previous declaration pertaining to claim constructions, entitled Declaration Of Dr. Matthew Pooley Regarding The Construction Of Disputed Claim Terms From U.S. Patent No. 8,523,072, and dated May 8th, 2020. In addition, my education, experience, and qualifications, including my publications, are set forth in my curriculum vitae, attached herein as Appendix A.

III. SUMMAR OF AUGUST 25th INSPECTION

12. Prior to the August 25th Inspection, I understand Defendants had not agreed to produce any example Accused Products that would have provided me the opportunity to properly investigate these products within a suitable Exponent facility. I understand from counsel that despite multiple requests—and despite allowing their own expert, Mr. Nranian, to investigate three

example accused products at his discretion—Defendants have consistently refused to produce example Accused Products for use within my own independent analysis.

13. Given that I have been requested to perform an independent analysis to determine whether or not the accused products satisfy the technical requirements of the asserted claims of the '072 Patent, and because these claims involve infrared proximity detector technology, I requested the opportunity to investigate example accused products within an Exponent laboratory that is properly equipped for assessing such detectors. In addition, to properly assess whether or not the accused products satisfy certain limitations of certain asserted claims, I requested access to the source code of the accused products so that I can investigate the measurement algorithm utilized by these products, as well as other information that describes this measurement algorithm that may be relevant to my independent analysis. I understand that Defendants have refused to grant these requests, and thus I have not been afforded the opportunity to investigate example accused products in a suitable Exponent laboratory and I have not been provided with any information relating to the accused products' measurement algorithm.

14. Indeed, prior to the August 25th inspection, my understanding was that—due to consistent refusal of Defendants to produce any example accused products and the algorithm or software to allow me to perform a typical independent infringement analysis of their accused product in a proper environment—the August 25th inspection may constitute the entirety of my physical infringement analysis of an accused product provided by Defendants. Accordingly, in advance of the inspection, I carefully prepared by considering what aspects of the accused product may be relevant to my infringement analysis and devising a suitable measurement procedure to investigate these aspects.

15. Consequently, in advance of the August 25th inspection I developed an inspection protocol to allow proper assessment of whether or not the accused products satisfy the limitations of the asserted claims. This measurement protocol was carefully designed to enable proper testing of the accused products' skimmer detection system, including investigating the wavelengths of light to which this system is responsive, as well as the sensitivity of measurements used by this system.

16. Given that details of the accused products' measurement and detection system are not publicly available, I developed my measurement protocol at a time when the only information available to me pertaining to the accused products' measurement system is that which is contained within the report issued by Mr. Nranian describing his own testing. Mr. Nranian's report, however, did not contain significant details pertaining to the measurement algorithm utilized by the accused product, and merely provided me with the knowledge that the accused products can display the purported "Current Value" corresponding to the sensed incident intensity of light.

17. Thus, in order to properly investigate the relative sensitivity of the accused products to infrared light and visible light, I developed a measurement protocol to allow a scientific comparison between how an example accused product responds to infrared light compared to how it responds to visible light. This measurement protocol involved exposing each of the four detectors on the faceplate of an accused product to calibrated laser illumination of known wavelength and intensities, so that the "Current Value" from each sensor could be investigated as a function of the intensity of incident illumination for both visible and infrared light.

18. More specifically, my measurement protocol involved exposing each detector on the accused product, individually, to an infrared laser of known wavelength and intensity, and observing how the "Current Value" reading changes with variations in this intensity; then, this process was to be repeated using a visible wavelength laser with the goal of allowing a scientific

comparison between the sensitivity of each detector as a function of incident power for infrared and visible light.

19. To implement my measurement protocol, I assembled on the order of $10,000 worth of specialized optical equipment and devised a portable configuration that would allow me to transport this equipment and utilize it at the Defendants' chosen location. This equipment included:

- Two different infrared lasers with different infrared wavelength.
- Two different visible lasers with different visible wavelength.
- Mounting hardware for safely and accurately aligning an individual laser with a detector on the accused products.
- Neutral density filters that attenuate each laser by various amounts to allow the intensity of illumination from each laser to be carefully controlled.
- A calibrated laser power meter, with compatible sensors for both infrared and visible lasers, to allow the incident power reaching the accused product's detectors to be independently measured.
- A filter that allows only infrared light (as defined by Mr. Nranian in his testing report) to pass, to enable each individual detector's response to only infrared light to be measured.
- A filter that allows only visible light (as defined by Mr. Nranian in his testing report) to pass, to enable each individual detector's response to only visible light to be measured.
- Laser safety glasses for the laser wavelengths to ensure safe operation of the laser equipment.
- An infrared viewer instrument that enables infrared light to be viewed for investigating the distribution of otherwise invisible light.
- Laser viewing cards that allow the path of infrared lasers to be viewed during alignment without the infrared viewer instrument.

20. My approach of using calibrated laser light to individually probe the sensitivity of each detector was carefully designed to enable proper investigation of whether the accused products satisfy all of the requirements of the asserted claims of the '072 Patent. Indeed, my approach of individually assessing the response from each detector was specifically devised to enable a proper

infringement analysis of the accused products. In particular, I specifically selected a measurement approach that would enable individual investigation of each detector, by isolating the response from each detector from signals due to the other detectors, so that I could attempt to investigate the detection algorithm and determine how the individual signal from each detector contributes to the "Current Value" and Skimmer Alarm outputs.

21. Unbeknownst to me, however, was that the "Current Value" reading on the accused product utilized by Mr. Nranian for his testing does **not** actually display the current value of intensity detected by the accused product. Instead, as I discovered only during the August 25th inspection, the "Current Value" reading in fact displays only the **lowest** current value of any of the four detectors. Consequently, because the "Current Value" reading is actually only the lowest "Current Value" reported from any of the four sensors at a given time, and because my measurement protocol involved isolating the contribution to the "Current Value" from each individual detector by exposing each sensor sequentially to an incident laser beam while the other three detector are covered, my measurement protocol could not be implemented since the "Current Value" reading from the illuminated detector is not displayed and is inaccessible.

22. In other words, my measurement approach that involved individually illuminating each detector separately with a carefully calibrated incident laser beam of known intensity and wavelength could not be performed successfully, because the "Current Value" from the detector being illuminated was not accessible since this "Current Value" is actually from only the lowest current measurement which always corresponds to one of the covered detectors rather than the detector being illuminated. Importantly, I had no prior knowledge that the "Current Value" reported by the accused product was not actually the current measured value, since I had not been provided with sufficient information pertaining to how the accused product measurements were

reported, and since nothing in Mr. Nranian's report explained that only the lowest response from any detector at a given time was reported.

23. Therefore, once it became clear during the August 25th inspection that the accused products could only report the lowest "Current Value," I realized that it would not be possible to properly implement my measurement protocol. Nevertheless, however, I improvised a way to scatter an infrared laser beam such that some unknown intensity from the beam could reach all four of the detectors simultaneously—thus causing the "Current Value" reading to display the signal from the least illuminated of the detectors—and was thereby able confirm that the accused products are indeed responsive to infrared illumination. Accordingly, I demonstrated that the response of the accused product to infrared light can be investigated using a means of simultaneously illuminating all four detectors with IR light, and I have subsequently devised an updated measurement protocol to properly investigate this further in a second inspection.

24. During the August 25th inspection, Defendants commented that I should have brought four of each kind of filter so I could simultaneously apply a filter to all four sensors on the accused product. Of course, such comments ignore that my measurement protocol was devised specifically to probe each detector individually, and thus only one of each kind of filters are needed by my measurement protocol.

25. Similarly, Defendants suggested that I purchase additional lasers at an unspecified near-by location to allow me to simultaneously illuminate all four detectors. However, such a suggestion is technically infeasible since (even if appropriate lasers could be obtained) balancing the intensity from four individual lasers using one set of neutral density filters, and safely aligning four separate lasers in the office conference room environment mandated for the inspection, is not practical or safe. For instance, I had procured particular, scientific grade, lasers with similar emission profiles

to allow better comparability between measurements acquired with different lasers, and it would not be proper to supplement these with less specialized "laser pointer" type devices or similar. Moreover, the lasers that were brought to the inspection are class 3R lasers, which can pose an eye-safety hazard from either direct viewing or from certain kinds of reflections, and thus I am not comfortable building an "ad-hoc" laser assembly involving such potential hazards within an unfamiliar conference room in which many of the surfaces were reflective, such as the windows and white board, etc.

26. In any event, Defendants suggestions would not have been necessary if either I had been permitted to conduct the inspection in a proper optical laboratory—where I would have access to appropriate optical equipment to adapt and develop the measurement protocol based on real-time findings throughout the inspection—or if Defendants had provided me with technical information pertaining to how the accused products' measurements function and are reported in advance of the inspection—in which case I would have been able to devise a suitable measurement protocol and bring appropriate equipment to attempt to mitigate the impediment that their insistence of performing the investigation in an office conference room caused.

27. In summary, in advance of the August 25th inspection, based on the information available to me at the time, I prepared a carefully considered measurement protocol to enable a proper assessment of the infrared sensitivity of the accused products, and to enable investigation of the measurement algorithm utilized by the accused products. However, due to Mr. Nranian's description of how the accused products report the "Current Value" reading in his testing report, combined with Defendants' refusal to provide details of how their accused product functions (e.g., the algorithm) and their refusal to allow the inspection to be performed in a proper optical laboratory, my measurement protocol could not be implemented during the inspection.

Nevertheless, I was still able to demonstrate that the accused products are responsive to IR light, and to gain sufficient information to develop an updated measurement protocol that utilizes all four detectors simultaneously.

IV. DECLARATION

September 15th, 2022
(Date)

Matthew A. Pooley, Ph.D.

APPENDIX A

Curriculum Vitae of Matthew A. Pooley, Ph.D.

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Professional Profile

Dr. Pooley's expertise is in semiconductor physics, quantum optics, and information science. His research background involves the development of semiconductor technology for quantum computing, and he has extensive experience designing, fabricating, characterizing, and modeling optoelectronic devices. He provides a range of professional technical services to clients including:

- Scientific support for legal activities, such as Intellectual Property matters, International Arbitration, and other litigation.
- Failure analysis relating to semiconductor electronics, optical devices, optoelectronics and display technology, and digital control systems.
- Advanced image processing, thermal (IR) imaging, and optical measurement techniques.
- Numerical analysis, such as Finite Element Modeling, for engineering and product design matters.
- Technical advice relating to software development and data analytics.
- Providing objective scientific advice to senior management executives of a startup company.

Prior to joining Exponent, Dr. Pooley worked as a Software Developer for COMSOL Multiphysics, creating tools to model established consumer products such as transistors, LED lighting, photodiodes, and photovoltaic cells. He also has significant hands-on experience of semiconductor fabrication and processing techniques in a cleanroom environment, including: sample cleaning and preparation, wafer cleaving, photolithography, metal deposition, etching, and device bonding/packaging.

Dr. Pooley completed his Ph.D. in the Semiconductor Physics Group at the University of Cambridge, UK, in conjunction with Toshiba Research Europe Ltd. His work involved a range of novel experiments that led to 7 publications in respected journals. In addition to his semiconductor fabrication skills, he has extensive experience in a range of spectroscopy, optical measurement, and material characterization techniques including, photoluminescence (PL), micro-PL, electro-PL, time-resolved PL, Fourier transform infrared spectroscopy (FTIR), photon correlation measurements such as HBT and HOM interferometry, atomic force microscope (AFM) imaging, and scanning tunneling microscope (STM) imaging. He also has a strong background in scientific programming and numerical simulation methods, and has developed systems for automatic data acquisition and processing, such as a piezo feedback system to

stabilize alignment in optical measurements with long acquisition times, and analysis tools for easily extracting figures of merit from large data sets using fits to mathematical models.

Academic Credentials & Professional Honors

Ph.D., Physics, University of Cambridge, England, 2013

M.Sci., Physics (Honours, 1st Class), University of Nottingham, UK, 2009

Professional Affiliations

IEEE, Senior Member (#93621352)

Publications

D'Andrade B, Phan SK, and Pooley MA, Data Loss Prevention Strategies in the Era of the Cloud, American Bar Association Committee News on Cybersecurity and Data Privacy – Summer/Fall 2019.

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